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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/711,829

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Thomas H. Whitesides

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06/22/2006

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EXAMINER

CHOI, WILLIAM C

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 06/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/711,829

Applicant(s)

WHITESIDES ET AL.

Examiner

William C. Choi

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 0306.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of Group I (claims 1-35) in the reply filed on 3/23/2006 is acknowledged.

Information Disclosure Statement

Receipt of the Information Disclosure Statement (IDS) with copies of the references cited therein, was received on 3/23/2006. An initialized copy of the IDS is enclosed with this office action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Regarding claims 9-12 (and dependent claims 13-25), the phrase "type" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "type"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d). For purposes of examination, the phrase "type" was omitted from the claim language. Dependent claims 13-25 inherit the rejection from their parent claims.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8 and 26-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Uytterhoeven et al (U.S. 4,663,265).

In regard to claim 1, Uytterhoeven et al discloses an electrophoretic medium (column 10, lines 1-4, Figure 1) comprising an electrically charged particle (column 11, lines 49-53) suspended in a suspending fluid (column 10, lines 1-4), the particle having a polymeric shell having repeating units derived from at least one monomer the homopolymer (column 3, lines 44-68) of which is incompatible with the suspending fluid (column 10, lines 49-53).

Regarding claim 2, Uytterhoeven et al discloses wherein the polymeric shell further comprises repeating units derived from at least one monomer the homopolymer of which is compatible with the suspending fluid (column 4, lines 8-50).

Regarding claim 3, Uytterhoeven et al discloses wherein the at least one monomer forming the compatible homopolymer comprises from about 15 to about 99 percent by weight of the polymer shell (column 2, lines 18-26).

Regarding claim 4, Uytterhoeven et al discloses wherein the at least one monomer forming the compatible homopolymer comprises from about 50 to about 99 percent by weight of the polymer shell (column 2, lines 18-26).

Regarding claim 5, Uytterhoeven et al discloses wherein the suspending fluid comprises a hydrocarbon (column 10, lines 49-53).

Regarding claim 6, Uytterhoeven et al discloses wherein the monomer forming the incompatible homopolymer comprises any one of more of acrylates and methacrylates formed from alcohols containing not more than about eight carbon atoms, said alcohols optionally containing hydroxyl or fluoro substituents; acrylamides and methacrylamides; N, N-dialkylacrylamides; N-vinylpyrrolidone; styrene and derivatives thereof; vinyl esters; vinyl halides; polyfluoroaromatic molecules containing a polymerizable functional group; and silicone-containing molecules containing a polymerizable functional group (column 3, lines 44-68).

Regarding claim 7, Uytterhoeven et al discloses wherein the monomer forming the incompatible homopolymer comprises any one of more of methyl methacrylate, ethyl methacrylate, butyl methacrylate, isobutyl methacrylate, t-butyl methacrylate, octyl methacrylate, 2-ethylhexyl methacrylate, 2-hydroxyethyl methacrylate, trifluoroethyl methacrylate, 2,2,3,4,4,4-hexafluorobutyl acrylate, 2,2,3,4,4,4-hexafluorobutyl methacrylate, acrylamide, acrylic acid, acrylonitrile, methyl vinyl ketone, methacrylamide, N-vinylpyrrolidone, styrene, vinyl acetate, vinyl chloride, vinylidene chloride, and pentafluorostyrene (column 3, lines 44-68).

Regarding claim 8, Uytterhoeven et al discloses wherein the monomer forming the compatible homopolymer comprises lauryl methacrylate (column 4, line 21) and the monomer forming the incompatible homopolymer comprises any one or more of styrene, t-butyl methacrylate and N-vinylpyrrolidone (column 3, line 64).

In regard to claim 26, Uytterhoeven et al discloses an electrophoretic particle comprising a pigment particle (column 11, lines 49-53) having a polymeric shell having repeating units derived from at least one monomer the homopolymer of which is incompatible with n-hexane (column 3, lines 44-68).

Regarding claim 27, Uytterhoeven et al discloses wherein the polymeric shell further comprises repeating units derived from at least one monomer the homopolymer of which is compatible with n-hexane (column 4, lines 8-50).

Regarding claim 28, Uytterhoeven et al discloses wherein the at least one monomer forming the compatible homopolymer comprises from about 15 to about 99 percent by weight of the polymer shell (column 2, lines 18-26).

Regarding claim 29, Uytterhoeven et al discloses wherein the at least one monomer forming the compatible homopolymer comprises from about 50 to about 99 percent by weight of the polymer shell (column 2, lines 18-26).

Regarding claim 30, Uytterhoeven et al discloses wherein the monomer forming the incompatible homopolymer comprises any one of more of acrylates and methacrylates formed from alcohols containing not more than about eight carbon atoms, said alcohols optionally containing hydroxyl or fluoro substituents; acrylamides and methacrylamides; N,N-dialkylacrylamides; N-vinylpyrrolidone; styrene and derivatives thereof; vinyl esters; vinyl halides; polyfluoroaromatic molecules containing a polymerizable functional group; and silicone-containing molecules containing a polymerizable functional group (column 3, lines 44-68).

Regarding claim 31, Uytterhoeven et al discloses wherein the monomer forming the incompatible homopolymer comprises any one of more of methyl methacrylate, ethyl methacrylate, butyl methacrylate, isobutyl methacrylate, t-butyl methacrylate, octyl methacrylate, 2-ethylhexyl methacrylate, 2-hydroxyethyl methacrylate, trifluoroethyl methacrylate, 2,2,3,4,4,4-hexafluorobutyl acrylate, 2,2,3,4,4,4-hexafluorobutyl methacrylate, acrylamide, acrylic acid, acrylonitrile, methyl vinyl ketone, methacrylamide, N-vinylpyrrolidone, styrene, vinyl acetate, vinyl chloride, vinylidene chloride, and pentafluorostyrene (column 3, lines 44-68).

Regarding claim 32, Uytterhoeven et al discloses wherein the monomer forming the compatible homopolymer comprises lauryl methacrylate and the monomer forming the incompatible homopolymer comprises any one or more of styrene, t-butyl methacrylate and N-vinylpyrrolidone (column 3, line 64).

Regarding claim 33, Uytterhoeven et al discloses wherein the pigment particle comprises any one or more of titania, carbon black and copper chromite (column 10, line 67 – column 11, line 2).

In regard to claim 34, Uytterhoeven et al discloses an electrophoretic particle comprising a pigment particle (column 11, lines 49-53) having a polymeric shell having repeating units derived from at least one monomer the homopolymer of which is incompatible with perfluorodecalin (column 3, lines 44-68).

In regard to claim 35, Uytterhoeven et al discloses an electrophoretic particle comprising a pigment particle (column 11, lines 49-53) having a polymeric shell having repeating units derived from at least one monomer the homopolymer of which is

incompatible with polydimethylsiloxane 200, viscosity 0.65 centistokes (column 3, lines 44-68).

Allowable Subject Matter

Claims 11-25 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach a combination of all the claimed features as presented in claims 11-25: an electrophoretic medium comprising a suspending fluid and first and second electrically charged particles suspended in the suspending fluid having polymeric shells and a differing optical characteristic as claimed, specifically wherein the polymeric shells are arranged such that homoaggregation of the first and second particles is thermodynamically favored over heteroaggregation.

Claims 9 and 10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach a combination of all the claimed features as presented in claims 9 and 10: an electrophoretic medium comprising a particle having a polymeric shell as claimed, specifically wherein said medium comprises a second electrically charged particle having a polymeric shell and at least one optical characteristic differing from that of the other electrically charged particle.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Choi whose telephone number is (571) 272-2324. The examiner can normally be reached on Monday-Friday from about 9:00 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on (571) 272-2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

W.C.

William Choi
Patent Examiner
Art Unit 2873
June 9, 2006


RICKY MACK
SUPERVISORY PATENT EXAMINER